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10/712,523	11/12/2003	Robert Fu	TRAN-PI96	8679

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WAGNER, MURABITO & HAO LLP
Third Floor
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San Jose, CA 95113

EXAMINER

MONDT, JOHANNES P

ART UNIT	PAPER NUMBER
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3663

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/712,523	Applicant(s) FU ET AL.	
	Examiner Johannes P. Mondt	Art Unit 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response filed 5/14/07 to Final Office Action mailed 3/8/07 forms the basis of this Office Action. In light of said the Finality of said Office Action, in particular, the Remarks by Applicant concerning the lack of art rejections for claims other than claim 1, is herewith withdrawn and a new Final Office Action is herewith issued.

Drawings

The drawings are objected to under 37 CFR 1.83(b) because they are incomplete. 37 CFR 1.83(b) reads as follows:

When the invention consists of an improvement on an old machine the drawing must when possible exhibit, in one or more views, the improved portion itself, disconnected from the old structure, and also in another view, so much only of the old structure as will suffice to show the connection of the invention therewith.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the

examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specifically, Applicant is requested to include, in the Drawings, (1) first input, (2) second input, (3) first switched terminal and (4) second switched terminal in correspondence with the claims as amended per 12/04/06.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. ***Claims 1-8*** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In particular, the claimed first and second inputs are indistinguishable yet distinctly claimed from first and second "switched terminals", yet are, based on specification with drawings, not distinct therefrom, because said inputs are "for controlling" and hence must have controls, hence switching capability.

However, only one connection exists between the substrate and said switch.

The present claim language thus renders the meanings of "input for controlling" and the implied switched terminal couplings to coincide at least in the case of the connection to the substrate. Parenthetically, the explanation of what is meant by "coupling" in the Specification does not remedy this apparent indefiniteness since no other material coupling appears to exist other than through electrical lines.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. ***Claims 1-8*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lai et al (6,791,146 B2) in view of Mergens et al (6,803,633).

This rejection is provided to the best of examiner's understanding despite the noted indefiniteness on what is comprised in the notion "switched terminal", particularly assuming any input line to a switch to have a "switched terminal".

Lai et al teach a switch capable of regulating electric potential in a substrate of integrated circuit, comprising:

a first input 372 (col. 4, l. 29) coupled to an N-well (input to switch 370 from 318, 318 being a portion of N-well 312 as it has the same conductivity type as said N-well) (col. 4, l. 5-50);

a second input coupled to a substrate bias supply line 374 (col. 5, l. 9);

a first switched terminal coupled to control circuit 380 (col. 5, l. 2);

a second switched terminal of said switch coupled to said substrate bias supply line, within said switch so as to switch to or from input 374 (see assumption by examiner); and

an output terminal (of 372) coupled to a P-type substrate through portion 320 thereof (320 and 300 having first type conductivity, which is P-type conductivity (col. 4, l. 5-20)).

Lai et al do not necessarily teach the limitation that said first switched terminal is coupled to ground. However, it would have been obvious to include this limitation in view of Mergens et al, teaching control circuit to be used in electrostatic discharge protection (title, abstract (hence analogous art) to couple between supply line and ground (abstract and claims 8, 13, 15 and 16). Implementation of this coupling capability of the control circuit provides coupling to ground through the control circuit. Motivation at least derives from the advantage that the system can be switched off in a harmless and cost efficient voltage setting.

On claim 2: because said bias voltage line is separate from the connection to the control circuit the claim limitation is met.

On claim 3: said switch is operable to electrically couple to said P-type substrate because of the substrate bias supply line 372. By definition, a substrate bias voltage is present on said substrate bias supply line.

On claim 4: the switch further comprises a third control input for controlling said switch coupled to a second N-well bias supply line 350 (col. 4, l. 28).

On claim 5: said switch is operable to electrically couple said P-type substrate to said ground because of the existence of supply line 372. By definition, a substrate bias voltage is present on said substrate bias supply line.

Furthermore, In reference to the claim language referring to "is operable to electrically couple", intended use and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963).

On claim 6: said switch is operable to electrically couple said P-type substrate to said substrate bias supply line because the electrical coupling between said P-type substrate and said bias supply line is an inherent functional aspect of said substrate bias supply line. By definition, a substrate bias voltage is present on said substrate bias supply line.

Furthermore, In reference to the claim language referring to "is operable to electrically couple", intended use and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963).

On claim 7: said switch is operable to electrically couple said P-type substrate to said substrate bias supply line because the electrical coupling between said P-type substrate and said bias supply line is an inherent functional aspect of said substrate bias supply line. Because 374 and 372 are independent connections to switch 370 this does not depend on whether the bias voltage on said N-well bias line is the value of ground, i.e., zero, or non-zero.

Furthermore, In reference to the claim language referring to "is operable to electrically couple", intended use and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963).

On claim 8: Because said switch 370 is connected, in the combined invention, to control circuit that can switch to ground (see claim 1), said switch is operable to electrically couple said P-type substrate to said ground. By definition, a substrate bias voltage is present on said substrate bias supply line. Because N-well bias supply line 374 is independent of substrate bias supply line this capability does not depend on the specific value of the voltage on the N-well bias line.

Furthermore, In reference to the claim language referring to "is operable to electrically couple", intended use and other types of functional language must result in a

Art Unit: 3663

structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963).

3. **Claims 1-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lai et al (6,791,146 B2) in view of Mergens et al (6,803,633).

In an alternative rejection, *Lai et al teach* a switch capable of regulating electric potential in a substrate of integrated circuit, comprising (Figures 3 and 4):

a first input 374 (col. 5, l. 9) coupled to an N-well (input to switch 370 from 326, 326 being a portion of N-well 312 as it has the same conductivity type as said N-well) (col. 4, l. 5-50);

a second input connected to 372 (col. 4, l. 29) coupled to a substrate bias supply line 372 (loc.cit.);

a first switched terminal coupled to control circuit 380 (col. 5, l. 2);

a second switched terminal of said switch coupled to said substrate bias supply line, within said switch so as to switch to or from input 372 (see assumption by examiner); and

an output terminal 360 coupled to a P-type substrate through portion 324 thereof (324 and 300 having first type conductivity, which is P-type conductivity (col. 4, l. 5-20)).

Lai et al do not necessarily teach the limitation that said first switched terminal is coupled to ground. However, it would have been obvious to include this limitation in view of Mergens et al, teaching control circuit to be used in electrostatic discharge protection (title, abstract (hence analogous art) to couple between supply line and ground (abstract and claims 8, 13, 15 and 16). Implementation of this coupling capability of the control circuit provides coupling to ground through the control circuit. Motivation at least derives from the advantage that the system can be switched off in a harmless and cost efficient voltage setting.

On claim 2: in the combined invention, because said bias supply line is separate from the connection to the control circuit the claim limitation is met.

On claim 3: said switch is operable to electrically couple to said P-type substrate because of the substrate bias supply line 372. By definition, a substrate bias voltage is present on said substrate bias supply line.

On claim 4: the switch further comprises a third control input for controlling said switch coupled to a second N-well bias supply line 350 (col. 4, l. 28).

On claim 5: said switch is operable to electrically couple said P-type substrate to said ground because of the existence of supply line 372. By definition, a substrate bias voltage is present on said substrate bias supply line.

Furthermore, In reference to the claim language referring to "is operable to electrically couple", intended use and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is

Art Unit: 3663

capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963).

On claim 6: said switch is operable to electrically couple said P-type substrate to said substrate bias supply line because the electrical coupling between said P-type substrate and said bias supply line is an inherent functional aspect of said substrate bias supply line. By definition, a substrate bias voltage is present on said substrate bias supply line.

Furthermore, In reference to the claim language referring to "is operable to electrically couple", intended use and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963).

On claim 7: said switch is operable to electrically couple said P-type substrate to said substrate bias supply line because the electrical coupling between said P-type substrate and said bias supply line is an inherent functional aspect of said substrate bias supply line. Because 374 and 372 are independent connections to switch 370 this does not depend on whether the bias voltage on said N-well bias line is the value of

Art Unit: 3663

ground, i.e., zero, or non-zero. Further and independent coupling between P-type substrate and substrate supply line is enabled through the line 360 which is capacitively coupled to line 372.

Furthermore, In reference to the claim language referring to "is operable to electrically couple", intended use and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto ; 136 USPQ 458, 459 (CCPA 1963).

On claim 8: Because said switch 370 is connected, in the combined invention, to control circuit that can switch to ground (see claim 1), said switch is operable to electrically couple said P-type substrate to said ground. By definition, a substrate bias voltage is present on said substrate bias supply line. Because N-well bias supply line 374 is independent of substrate bias supply line this capability does not depend on the specific value of the voltage on the N-well bias line.

Furthermore, In reference to the claim language referring to "is operable to electrically couple", intended use and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a

process of making, the intended use must result in a manipulative difference as compared to the prior art. In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963).

Response to Arguments

Applicant's arguments filed 5/14/07 have been fully considered but they are on the whole not persuasive. In particular:

(1) On the finality of the office action at this stage of the prosecution, counter to Applicant's apparent characterization of the amendment to the claim language as merely clarifying, this characterization is at variance with Applicant's own admission in the Remarks, pages 8-9, filed 12/4/06, alleging that one of said amendments (lines 3 and 5) forms ad "additional reasons", hence a "reason" why claim 1 overcomes the rejection of record. Moreover, "control" and "input" are patentably distinct because their plain meanings are quite different (see pages 252 and 603 of Merriam-Webster's Collegiate Dictionary). Applicant is reminded of the petitionable nature of the holding of Finality of an Office Action.

In light of the above considerations the Finality of the previous office action was in itself justified. Accordingly, the present Office Action, needed as Replacement for said Final Office Action mailed 3/8/07 and needed only because of an oversight in the Heading of the Art Rejections herewith corrected, is also made FINAL.

(2) On 35 USC 112, Applicant's argument fails to persuade because it does not address the stated ground for the rejection for indefiniteness, which is *not* as alleged by

Applicant the lack of distinction between "switched terminal" and "terminals for controlling" in general but instead the lack of distinction between the two based on the Specification and the circumstance that they are both separately claimed. In view of Applicant's comments Applicant is now by Objection additionally requested to disclose specifically by numeral in the Drawings both first and second input and first and second switched terminals as recited in the claims.

(3) On 35 USC 103,

Applicant's first allegation (final par. of page 5 of Remarks) appears, in its elaboration on page 6, first paragraph, to confuse "N-well" with substrate. In any event, what matters in light of claim 1 is the coupling to the N-well (lines 3-4 of claim 1). N-well bias supply line, disclosed as a simple connecting line in the Specification, is no different from the disclosure of the connecting line to the N-well from said first input. Therefore, the *capability* of supplying a bias to the N-well is thereby in evidence. Only said capability matters. Applicant is in this regard reminded intended use and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963).

Similarly, Applicant's second allegation fails to recognize that the very existence of a line to N+ regions in an N-well constitutes the capability of supplying the substrate

with a voltage. Applicant's traverse based on *conductivity type* does not address the claim language wherein *no such limitation is included* for said substrate bias supply line. That a (potentially other) substrate is P-type rather than N-type is irrelevant for the claim language as it stands.

Applicant's third point of traverse on an alleged failure of Lai to teach the claimed output terminal is not persuasive either because said p-type substrate has not been claimed to be contiguous and hence can be defined with portion 320 included therein.

Applicant's fifth point of traverse alleges inoperability of the device by Lai upon inclusion of first switched terminal to ground as the switch 370 would be unable to change or switch. However, it is not at all implied by "coupled to ground" that the ground potential is the invariant potential as otherwise the supply line of the IC as disclosed in Mergens et al (see abstract as cited) would also be inoperative, which it is not.

Applicant's final point of traverse on an alleged absence of any substrate bias supply line in Lai is not persuasive either, being essentially the same as Applicant's second point of traverse, with reference to the above discussion of Applicant's second point of traverse. Additionally, cathode 360 supplies a substrate bias through region 324 of the substrate. Once again, there is no limitation in the claim language requiring the substrate as claimed to be either the same substrate to which the "substrate bias supply line" is connected or to be contiguous.

Finally on 35 USC 103, an alternative rejection based also on Lai et al in view of Mergens et al is herewith included.

Applicant's conclusion that only claim 1 stand rejected over the prior art has convinced the examiner to withdraw the finality of the previous office action and replace said office action with one in which the Heading of the rejections of claims 1-8, which were all included, has been corrected for an oversight, whereby now all claims stand also officially rejected under 35 USC over the prior art as cited in said previous office action.

Conclusion

Applicant's amendment filed 12/04/2006 necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johannes P. Mondt whose telephone number is 571-272-1919. The examiner can normally be reached on 8:00 - 18:00.

Art Unit: 3663

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack W. Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JPM
June 27, 2007

Primary Patent Examiner:


Johannes Mondt (Art Unit: 3663)